

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

WIRTGEN AMERICA, INC.,

Plaintiff,

v.

CATERPILLAR, INC.,

Defendant.

Case No. 1:17-cv-00770-JDW-MPT

MEMORANDUM

Wirtgen America Inc. sued Caterpillar Inc., alleging that Caterpillar infringed thirteen of Wirtgen's patents. Caterpillar countersued, alleging that Wirtgen infringed three of its patents. All the patents relate to machines used in road construction and repair. The Parties have presented disputes over the meaning of twelve disputed claim terms stemming from the following seven patents: (1) U.S. Patent No. 7,946,788 ('788 Patent); (2) U.S. Patent No. 8,511,932 ('932 Patent); (3) U.S. Patent No. 8,690,474 ('474 Patent); (4) U.S. Patent No. RE48,268 ('268 Patent); (5) U.S. Patent No. 7,523,995 ('995 Patent); (6) U.S. Patent No. 9,975,538 ('538 Patent); and (7) U.S. Patent No. 9,371,618 ('618 Patent). I held a hearing January 24-25, 2023, and now resolve the disputed constructions.

I. LEGAL STANDARD

A. General Principles of Claim Construction

"It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWS Corp.*, 415

F.3d 1303, 1312 (Fed. Cir. 2005) (quote omitted). Claim construction is a matter of law. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 325 (2015). “[T]here is no magic formula or catechism” for construing a patent claim, nor is a court “barred from considering any particular sources or required to analyze sources in any specific sequence[.]” *Phillips*, 415 F.3d at 1324. Instead, a court is free to attach the appropriate weight to appropriate sources “in light of the statutes and policies that inform patent law.” *Id.* (citation omitted).

A court generally gives the words of a claim “their ordinary and customary meaning,” which is the “meaning that the term would have to a person of ordinary skill in the art at the time of the invention, i.e., as of the effective filing date of the patent application.” *Id.* at 1312-13 (quotations omitted). Usually, a court first considers the claim language; then the remaining intrinsic evidence; and finally, the extrinsic evidence in limited circumstances. *See Interactive Gift Exp., Inc. v. Compuserve, Inc.*, 256 F.3d 1323, 1331-32 (Fed. Cir. 2001). While “the claims themselves provide substantial guidance as to the meaning of particular claim terms[.]” a court also must consider the context of the surrounding words. *Phillips*, 415 F.3d at 1314. In addition, the patent specification “is always highly relevant to the claim construction analysis and indeed is often the single best guide to the meaning of a disputed term.” *AstraZeneca AB v. Mylan Pharms. Inc.*, 19 F.4th 1325, 1330 (Fed. Cir. 2021) (quotation omitted). But, while a court must construe claims to be consistent with the specification, the court must “avoid the danger of reading limitations from the specification into the claim” *Phillips*, 415 F.3d at 1323. This is a

"fine" distinction. *Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186-87 (Fed. Cir. 1998). In addition, "even when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using 'words or expressions of manifest exclusion or restriction.'" *Hill-Rom Svcs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1372 (Fed. Cir. 2014) (quotation omitted) (cleaned up).

A court may refer to extrinsic evidence only if the disputed term's ordinary and accustomed meaning cannot be discerned from the intrinsic evidence. *See Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1584 (Fed. Cir. 1996). Although a court may not use extrinsic evidence to vary or contradict the claim language, extrinsic materials "may be helpful to explain scientific principles, the meaning of technical terms, and terms of art that appear in the patent and prosecution history." *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995). Extrinsic evidence is used "to ensure that the court's understanding of the technical aspects of the patent is consistent with that of a person of skill in the art[.]" *Phillips*, 415 F.3d at 1318. The Federal Circuit has cautioned against relying upon expert reports and testimony that is generated for the purpose of litigation because of the likelihood of bias. *Id.*; *see also Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 595 (1993) ("Expert evidence can be both powerful and quite misleading because of the difficulty in evaluating it.") (quotation omitted).

Ultimately, “[t]he construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be . . . the correct construction.” *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998).

B. Construction of Means-Plus-Function Limitations

When construing claim terms, a court must consider whether they are “mean-plus-function” limitations. 35 U.S.C. § 112(f) governs the interpretation of means-plus-function claim terms:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof

35 U.S.C. § 112(f). For patents that predate the America Invents Act, the same standard applies under former 35 U.S.C. § 112, ¶ 6.

To determine whether Section 112, ¶ 6 governs a claim, the “essential inquiry” is “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (en banc).¹ If a claim term does not use the word “means,” there is a rebuttable presumption that means-plus-function claiming under Section 112, ¶6 does not apply. *See Williamson*, 792 F.3d at 1349. To rebut it, a

¹ An *en banc* Federal Circuit joined the portion of the *Williamson* decision discussing the applicability of Section 112. *See Williamson*, 892 F.3d at 1347-49 & n.3.

challenger must demonstrate that a claim term either fails to “recite sufficiently definite structure” or recites “function without reciting sufficient structure for performing that function.” *Id.* at 1349. “The ultimate question is whether the claim language, read in light of the specification, recites sufficiently definite structure to avoid [Section] 112, ¶ 6.” *MTD Prods. Inc. v. Iancu*, 933 F.3d 1336, 1341 (Fed. Cir. 2019) (quote omitted).

Courts use a two-step process to construe means-plus-function limitations. First, the court must determine the claimed function. *See Kemco Sales, Inc. v. Control Papers Co.*, 208 F.3d 1352, 1361 (Fed. Cir. 2000). Second, the court must identify the corresponding structure that the specification discloses to perform that function. *See id.* When the specification discloses “distinct and alternative structures for performing the claimed function,” the proper construction should embrace each one. *Creo Prods., Inc. v. Presstek, Inc.*, 305 F.3d 1337, 1346 (Fed. Cir. 2002). The structure disclosed in the patent specification that corresponds to the claimed function limits the scope of a means-plus-function claim. *See Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1219 (Fed. Cir. 2003).

C. Indefiniteness

“Indefiniteness is a matter of claim construction, and the same principles that generally govern claim construction are applicable to determining whether allegedly indefinite claim language is subject to construction.” *Kyowa Hakka Bio, Co., Ltd v. Ajinomoto Co.*, No. CV 17-313, 2020 WL 3403207, at *5 (D. Del. June 19, 2020) (internal

quotations omitted). "The internal coherence and context assessment of the patent, and whether it conveys claim meaning with reasonable certainty, are questions of law." *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 789 F.3d 1335, 1342 (Fed. Cir. 2015). A party seeking to prove indefiniteness must do so by clear and convincing evidence. *See BASF Corp. v. Johnson Matthey Inc.*, 875 F.3d 1360, 1365 (Fed. Cir. 2017); *see also Cox Commc'ns, Inc. v. Sprint Commc'n Co. LP*, 838 F.3d 1224, 1228 (Fed. Cir. 2016).

"A patent's specification must 'conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as [the] invention.'" *Teva*, 789 F.3d at 1340 (quoting 35 U.S.C. § 112, ¶ 2.) A patent claim is indefinite if, "viewed in light of the specification and prosecution history, [it fails] to inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014).

II. CONSTRUCTION OF DISPUTED TERMS

A. “indication and setting devices”²

Caterpillar’s Construction	Wirtgen America’s Construction	Court’s Construction
<p>Means-plus-function term under 35 U.S.C. §112, ¶ 6</p> <p>Function: “indicate the current actual value of and to set a set value for the operating parameter sensed by its associated sensor”</p> <p>Structure: “indication and setting device 2” and “indication and setting units 2a, 2b, 2c.” ‘788 Patent 1:62–2:14, 2:15–30, 3:7– 25, 4:12–22, 4:37–43, 4:48–64, 5:36–42, 6:45–56, Figs. 2–3, 6a–8d.</p>	<p>“operating parameter input and display devices”</p> <p>To the extent it is determined to be a means-plus-function term under 35 U.S.C. §112, ¶ 6, the term is construed as follows:</p> <p>Function: “indicate the current actual value of and to set a set value for the operating parameter sensed by its associated sensor”</p> <p>Structure: “indication and setting device” and “indication and setting units,” and their equivalents. See ‘788 Patent, at 1:62–2:14, 2:15–30, 3:7–25, 4:7–34, 4:35–67, 5:26–42, 6:1–8, 6:16–22, 6:45–56, Figs. 2–3, Figs. 6a–8d; ‘932 Patent, at 1:66–2:34, 3:11–28, 4:10–5:10, 5:30–46, 5:49–67, 6:5–12, 6:48–59, Figs. 2–3, Figs. 6a–8d; ‘474 Patent, at 1:62–2:30, 3:7–24, 4:6–67, 5:26–63, 6:1–8; 6:15–21; 6:43–54, Figs. 2–3, Figs. 6a–8d.</p>	<p>“operating parameter input and display devices”</p>

² This term appears in Claims 1 and 14 of the ‘788 Patent, Claims 9 and 17 of the ‘932 Patent, and Claims 19 and 26 of the ‘474 Patent.

The term “indication and setting devices” recites a definite structure to a person of skill in the art (“POSITA”). Courts presume that claim terms without the word “means” do not invoke Section 112, ¶ 6. *See Samsung Electronics America, Inc. v. Prisia Engineering Corp.*, 948 F.3d 1342, 1353 (Fed. Cir. 2020). A party urging otherwise can overcome that presumption “only if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.” *Id.* at 1353-54 (quotation omitted).

Caterpillar has not offered any evidence that “indication and setting devices” fails to recite a definite structure or recites function without structure. Both Parties use a form of indication and setting device as their proposed structure. At most, Caterpillar points to Dr. Rahn’s functional explanation of the devices. But Dr. Rahn’s functional explanation does not prove that he, or any other POSITA, can only understand the claim language in functional terms. To the contrary, Dr. Rahn states that skilled artisans understood “indication and setting devices” to connote a class of structures. (D.I. 121-1 ¶ 60). He supports his assertion by citing Caterpillar’s expert David Bevely, who explained in a prior IPR proceeding that a POSITA would understand a previous patent to disclose a plurality of indication and setting devices. (*Id.* ¶ 61.) Without any evidence to the contrary, *Samsung* dictates that Section 112, ¶ 6, does not apply. Because Wirtgen’s proposed construction is consistent with the claim language and the specification, and Caterpillar has not offered a construction other than means-plus-function, I adopt Wirtgen’s construction.

B. “without interruption of [/interrupting] the milling operation”³

Caterpillar’s Construction	Wirtgen America’s Construction	Court’s Construction
“without leaving the automatic mode of the control system”	“without stopping the act of milling”	“without stopping the act of milling”

This term requires construction because the bounds of “the milling operation” are not clear. I adopt Wirtgen’s construction because it provides this clarity: so long as the machine is still grinding pavement, the milling operation is continuing. This construction is also consistent with the PTAB’s construction of the same language in an earlier proceeding. (*See* D.I. 121-3 at 14-15.)

I reject Caterpillar’s construction because the claim is not as limited as Caterpillar suggests. The claim language does not include any reference to an “automatic mode.” Instead, the claim recites the ability to preselect and switch to different sensors. *See, e.g.*, ‘788 Patent 7:31-37. Wirtgen described this capability at the claim construction hearing and noted that switchovers could result in momentarily leaving the automatic mode. However, these switchovers do not stop the milling drum or cause “any erratic alteration of the at least one adjustment value.” (*E.g.*, ‘788 Patent 7:42-45.) Therefore, these switchovers meet the limits of the claim terms without meeting Caterpillar’s proposed

³ This term appears in Claims 1, 14, and 15 of the ‘788 Patent, Claims 1, 6, 9, and 17 of the ‘932 Patent, and Claims 1, 19, 26, and 33 of the ‘474 Patent.

construction. In effect, Caterpillar's construction requires a square when only a rectangle is claimed. I cannot and will not adopt such a limited construction.

C. "accommodates a lack of alignment"⁴

Caterpillar's Construction	Wirtgen America's Construction	Court's Construction
Indefinite	Not Indefinite	Not Indefinite

Caterpillar has not met its burden of showing by clear and convincing evidence that a POSITA would not understand the term "accommodates a lack of alignment." *See Guangdong Alison Hi-Tech Co. v. International Trade Commission*, 936 F.3d 1353, 1359-60 (Fed. Cir. 2019). Caterpillar argues that the claim is indefinite because it fails to inform a POSITA of the range of misalignment the articulated coupling accommodates and how the articulated coupling accommodates such misalignment. Caterpillar offers no evidence in support of its position, only attorney argument on supposed omissions from the patent.

Much of Caterpillar's argument relies on "a lack of" being a term of degree. (D.I. 116 at 30-31). I disagree. "A lack of" is binary in this case: there either is or is not alignment. The claim covers the smallest misalignment until the machine breaks. That this makes the claim broad does not make the term indefinite.

⁴ This term appears in Claims 1, 14, and 34 of the '268 Patent.

Even if “a lack of” were a term of degree, “[c]laim language employing terms of degree has long been found definite where it provided enough certainty to one of skill in the art when read in the context of the invention.” *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1370 (Fed. Cir. 2014). “[The Federal Circuit has] explained that a patentee need not define his invention with mathematical precision in order to comply with the definiteness requirement.” *Niazi Licensing Corp. v. St. Jude Medical S.C., Inc.*, 30 F.4th 1339, 1347 (Fed. Cir. 2022).

In this case, a POSITA would understand the misalignment accommodated with reasonable certainty. The specification describes the articulated coupling device accommodating “a lack of precise alignment between the output axis of the drive engine 10 and the input axes of the clutch 14 and the drive pulley 11 due to dynamic movement of the drive engine.” ‘268 Patent 6:25-29; *see also id.* at 5:20-24, 5:42-46. Likewise, the language from the previous patent, of which the ‘268 Patent is a reissue, also explained the misalignment the invention accommodated:

The purpose of the articulated coupling is to accommodate the very slight and temporary misalignments between the drive engine and the components of the second group which occur when the drive engine is allowed to slightly vibrate on its flexible mounting relative to the more rigidly mounted components of the second group.

(D.I. 119-15 at WA-0012726). The specification and prosecution history, therefore, provide information from which a POSITA would understand the misalignment accommodated with reasonable certainty. Caterpillar offers only attorney argument to the contrary. This

is not enough to overcome the presumption of patent validity by clear and convincing evidence. *See SunPower Corp. v. PanelClaw, Inc.*, C.A. No. 12-1633-MPT, 2016 WL 4578324, at *5 (D. Del. Aug. 31, 2016) (“Attorney argument is generally insufficient to demonstrate invalidity.”).

Like with the range argument, Caterpillar offers no evidence to show the claim fails to describe how misalignment is accommodated. Nor do I believe it could offer such evidence. The claims recite that an “articulated coupling accommodates a lack of alignment.” That the specification only provides examples of articulated couplings, rather than describing how articulated couplings work, does not doom the patent to indefiniteness. *See Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1345-47 (Fed. Cir. 2016). A POSITA would understand that an articulated coupling that accommodates a lack of alignment is within the scope of the claim and rigid couplings are outside its scope. This is all that is required of a patent. *See Nautilus*, 572 U.S. at 901.

D. “spring stiffness”⁵

Caterpillar’s Construction	Wirtgen America’s Construction	Court’s Construction
“spring constant”	“resistance to deformation”	“resistance to deformation”

⁵ This term appears in Claims 1, 14, and 34 of the ‘268 Patent.

This term requires construction because “spring stiffness” does not have a clear, obvious meaning. I adopt Wirtgen’s construction for three reasons. First, it covers the full range of materials offered as preferred embodiments, including those that are not linearly elastic. Second, it reflects that the supports are to be measured relative to each other – read into the claim language, the second support has a higher resistance to deformation than the first. Third, the claim construction exercise is ultimately intended to frame a POSITA’s understanding in a way that is helpful to the eventual jury. This construction should be accessible to future jurors.

Caterpillar’s objection to “resistance to deformation” is that it does not reflect the elasticity limitation of the ‘268 Patent. But the disputed term does not require elasticity. Rather, that requirement arises elsewhere in the claim, from the word “elastically.” The first drive engine component must be supported elastically. The second need not. (‘268 Patent, Claim 1(b)-(c).) Because the disputed term does not require elasticity, I will not read this limit into the claim construction.

Caterpillar’s proposed construction is inadequate for two reasons. First, the patent contemplates different forms of coupling that are not fully encapsulated by “spring constant,” such as elastomeric or rubber couplings. Second, a mathematical term used by physicists is unlikely to elucidate “spring stiffness” for the average juror.

E. “between projecting and retracted positions relative to said machine frame”⁶

Caterpillar’s Construction	Wirtgen America’s Construction	Court’s Construction
Plain and ordinary meaning	“between a position projecting outside the machine frame and a position retracted within the machine frame”	Between positions that are farther from or closer to the machine frame

This term requires construction because it does not have a clear, obvious meaning. Therefore, I do not adopt Caterpillar’s proposed plain and ordinary meaning construction. However, Caterpillar’s explanation of the plain and ordinary meaning—that “in the ‘projecting’ position, the rear ground engaging unit is farther away relative to the machine frame, while in a ‘retracted’ position, the rear ground engaging unit is closer relative to the machine frame,” (D.I. 117 at 17)—adds clarity that the term lacks and aligns with the claim language. So, I have adapted this construction.

Wirtgen’s objection to this construction is that it supposedly defines the projected and retracted positions relative to other track positions, which “eliminates the distinction between the two positions” and “renders relative to said machine frame superfluous.” (D.I. 117 at 20) (cleaned up). I disagree. The positions are still defined relative to the machine frame: “farther from or closer to the machine frame.” And the specification’s description of the projecting and retracted positions in singular terms with the definite article “the,”

⁶ This term appears in Claims 18 and 45 of the ‘995 Patent.

'995 Patent 4:38-44, indicates that the hypothetical Wirtgen proposes to illustrate its distinction, which involves a third position, is not at issue in the Patent. To the extent a third position exists and renders the claim indefinite, that is not what claim construction is intended to resolve. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996) (the purpose of claim construction is to "determin[e] the meaning and scope of the patent claims asserted to be infringed").

I also reject Wirtgen's proposed construction because it adds limitations that the claim language doesn't support. While the claimed "projecting position" and "retracted position" are determined "relative to the machine frame," it does not follow that the "projecting position" must be outside of the machine frame or that the "retracted position" must be within the machine frame. Nor does the specification require I import Wirtgen's proposed limitations. The figures are not inconsistent with my construction and the specification's description of prior art machines does not limit the patented invention.

F. “second actuatable means for rotating said at least one ground engaging unit”⁷

Caterpillar’s Construction	Wirtgen America’s Construction	Court’s Construction
Means-plus-function term under 35 U.S.C. § 112, ¶ 6:	Means-plus-function term under 35 U.S.C. § 112, ¶ 6:	Means-plus-function term under 35 U.S.C. § 112, ¶ 6:
Function: “rotate said at least one ground engaging unit about the lifting column axis”	Function: “rotate said at least one ground engaging unit about the lifting column axis”	Function: “rotate said at least one ground engaging unit about the lifting column axis”
Structure: “an actuator, such as a linear or rotary actuator”	Structure: “a rotary actuator positioned at a top portion of the lifting column”	Structure: “an actuator, such as a linear or rotary actuator”

The Parties agree that Section 112, ¶ 6, applies, and they agree upon the function. Therefore, I skip to the second step of construing a means-plus-function term and “identify the corresponding structure that the specification discloses to perform that function.” *See Kemco Sales, Inc.*, 208 F.3d at 1361. I adopt Caterpillar’s construction because the claimed structure is an actuator. *See, e.g.*, ‘995 Patent 4:38-50.

The patent is not limited to “a rotary actuator positioned at a top portion of the lifting column” as Wirtgen proposes. The specification discloses various kinds of actuators, including linear actuators. *See* ‘995 Patent 5:41-48; *see also* 4:61-62 (“at least one of the first and second actuators 42, 44 is a rotary actuator.”). And the claim itself dictates that

⁷ This term appears in Claim 45 of the ‘995 Patent.

the second actuatable means be "positioned at a location spaced apart from said first actuatable means," not that it be positioned at the top portion of the lifting column. While the specification does indicate that the use of a rotary actuator at the upper portion of the lifting column is a preferred embodiment, *see, e.g.*, '995 Patent 5:17-24, this is not the only embodiment disclosed. And when the specification discloses "distinct and alternative structures for performing the claimed function," the proper construction should embrace each one. *Creo Prods., Inc.*, 305 F.3d at 1346.

G. "a variable transmission"⁸

Caterpillar's Construction	Wirtgen America's Construction	Court's Construction
"transmission that can change transmission ratios"	"a stepless transmission that can change transmission ratios seamlessly"	"transmission that can change transmission ratios"

A variable transmission can change to provide varying speeds or ratios. In fact, that technical understanding is so common, it has made its way into common dictionaries, not just technical ones. *See, e.g.*, NEW OXFORD AMERICAN DICTIONARY 1915 (Angus Stevenson & Christine A. Lindberg eds., 3rd ed. 2010) (defining "variable," in the context of gears, as "designed to give varying ratios or speeds"). A POSITA's understanding would mirror this common understanding of the term "variable" in the context of a transmission. Caterpillar's construction reflects this without imposing further limitations on the claim.

⁸ This term appears in Claims 1 and 6 of the '538 Patent

I reject Wirtgen's construction because neither the claim nor the specification requires the transmission to be stepless or seamless. (*See, e.g.*, '538 Patent 1:35-37 ("variable transmissions which allow for variations in the engine speed without affecting rotor speed.")) Wirtgen does not explain why a two-speed transmission, or any other conventional multi-speed transmission, would not be variable transmissions. Wirtgen instead relies heavily on its expert's testimony that a POSITA would understand a variable transmission to refer to a transmission that is both stepless and that can change transmission ratios seamlessly. (D.I.s 117 at 34; 118-11 ¶139). But its expert's assertion that the plain and ordinary meaning of variable transmission is "a stepless transmission that can change transmission ratios seamlessly" is not persuasive. (D.I. 118-11 ¶135.) It runs counter to the common understanding illustrated by the dictionary definition above and appears to be based on other patents that discuss continuous and infinitely variable transmissions, which are more limited than the variable transmissions claimed in the '538 Patent.

In addition to its expert, Wirtgen points to the specification's discussion of continuously variable transmissions. This discussion does not require I adopt Wirtgen's construction, though. The inventors knew of and described continuously variable transmissions in the specification but did not import this limit to the claim language. Continuously variable transmissions are, therefore, a preferred embodiment. And this is

not a means-plus-function term that is limited to the embodiments disclosed. *Cf. Med. Instrumentation & Diagnostics Corp.*, 344 F.3d at 1219.

H. “receiving a desired rotor speed”/“to maintain a desired rotor speed”⁹

Caterpillar’s Construction	Wirtgen America’s Construction	Court’s Construction
Plain and ordinary meaning	“receiving, by the controller, a user-specified rotor speed” / “to sustain a user-specified rotor speed”	“receiving [and/or] to maintain a rotor speed based on user inputs”

This term requires construction because it does not have a clear, obvious meaning. Adopting Caterpillar’s construction would just kick the can down the road as to arguments about what the plain and ordinary meaning is.

The ‘538 Patent describes a controller system that maintains a rotor speed by varying the transmission ratio and engine speed. The controller can determine the rotor speed based on algorithms stored in the controller memory or as the operator sets it via an interface in the controller. Both methods require some form of user input, though. The memory method requires the user to input coefficients that allow the controller to calculate the desired rotor speed. And the operator interface method requires the user to input the desired rotor speed itself. For this reason, I adopt the construction “receiving [and/or] to maintain a rotor speed based on user inputs.” I reject Wirtgen’s construction because it ignores the memory method and would require the user to set the rotor speed.

⁹ This term appears in Claims 1 and 6 of the ‘538 Patent.

I. “predefined efficiency points”¹⁰

Caterpillar’s Construction	Wirtgen America’s Construction	Court’s Construction
Plain and ordinary meaning	“engine energy efficiency values defined prior to machine operation that correspond to specific engine loads and speeds”	“engine energy efficiency values set according to an established formula”

This term requires construction because “predefined efficiency points” does not have a clear, obvious meaning. When these common English words are strung together in the claimed order, their meaning is not clear to me, nor would they be to a jury member or POSITA. Therefore, I reject Caterpillar’s proposed plain and ordinary meaning construction.

The Parties do not dispute that “efficiency points” are engine energy efficiency values; they only dispute how and when to set these values. Figure 4 and the claim language indicate that there must be a formula (or formulas) to determine those values, with fuel consumption rates, optimum engine speeds, and engine loads as inputs to the equation. Wirtgen’s proposed limitation “that correspond to specific engine loads and speeds” omits fuel consumption rates as an input and duplicates the other inputs that the claim language articulates. I will not adopt a limitation that is both incomplete and redundant.

¹⁰ This term appears in Claims 1 and 6 of the ‘538 Patent.

At the claim construction hearing the Parties agreed that the formulas for determining the engine energy efficiency values are static and would be defined prior to machine operation. But it is possible that events during the machine operation would change the applicable formula used to calculate the values or the values themselves. Because it is possible for the values to change during machine operation, I will not adopt Wirtgen's proposed limitation of "defined prior to machine operation."

J. Agreed Upon Constructions

During the claim construction hearing, the Parties agreed on the record to my proposed construction of the three below terms. Given that agreement, I adopt these constructions, which are consistent with the relevant claim language and the specification.

i. "operating condition"/"operating state"¹¹

Caterpillar's Construction	Wirtgen America's Construction	Court's Construction
Plain and ordinary meaning <i>Alternatively</i> : "type of movement chosen by the user"	"whether the machine is milling or travelling, a depth and speed of planing, the type of material being milled, a power draw of the drum, whether the intermediate stage and/or final stage conveyors are operating, the operating speed of the conveyor(s), the operating speed of the drum, the type of drum used, whether a vacuum for dust control is present, or, if a vacuum for dust control is	"any information detected by the machine about then-current operation"

¹¹ This term appears in Claims 1 and 8 of the '618 Patent.

	<p>present, whether the vacuum is operational" / "drum operation and speed, conveyor belt activation and speed, machine ground speed, vacuum system activation, type of material planed, or planning depth"</p> <p>To the extent "operating condition" does not fall within one of the above, the term "operating state" fails the requirements of written description and enablement, under 35 U.S.C. § 112(a), and/or definiteness, under 35 U.S.C. § 112(b).</p> <p>To the extent "operating state" does not fall within one of the above, the term "operating state" fails the requirements of written description and enablement, under 35 U.S.C. § 112(a), and/or definiteness, under 35 U.S.C. § 112(b).</p>	
--	---	--

ii. "determine a desired main spray manifold pressure based on the estimated amount of pressurized water"¹²

Caterpillar's Construction	Wirtgen America's Construction	Court's Construction
Plain and ordinary meaning	"determine a main spray manifold pressure that will provide the estimated amount of pressurized water"	"estimate the amount of water needed to generate an intended pressure"

¹² This term appears in Claims 1 and 8 of the '618 Patent.

iii. “determine [the/a] pump signal based on the desired main spray pressure”¹³

Caterpillar’s Construction	Wirtgen America’s Construction	Court’s Construction
Plain and ordinary meaning	“determine [the/a] pump signal that will provide the desired main spray pressure”	“determine [the/a] pump signal based on the estimated amount of water needed to generate intended pressure”

III. CONCLUSION

I will construe the disputed claims as described above and will adopt the Parties’ agreed-upon constructions. An appropriate Order follows.

BY THE COURT:

/s/ Joshua D. Wolson

JOSHUA D. WOLSON, J.

March 10, 2023

¹³ This term appears in Claims 1 and 8 of the ‘618 Patent.